Training of Animal Science Professionals for Meeting the Challenges of the XXI Century.

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Brian Carlin Memorial Lecture
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IICA

- The Inter-American Institute for Cooperation on Agriculture
  - organization within the Inter-American System (OAS)
  - promote sustainable development in agriculture, food security, and prosperity in the rural communities of the Americas
- the development of an agricultural sector that is competitive, technologically prepared, environmentally managed, and socially equitable for the peoples of the Americas
  - www.iica.int
### 34 Member States in 5 Regions

<table>
<thead>
<tr>
<th>Region</th>
<th>Member States</th>
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<tbody>
<tr>
<td>Northern Region (3)</td>
<td>Canada, Mexico, United States</td>
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<tr>
<td>Central Region (7)</td>
<td>Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, Panama</td>
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<tr>
<td>Andean Region (5)</td>
<td>Bolivia, Colombia, Ecuador, Peru, Venezuela</td>
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<td>Southern Region (5)</td>
<td>Argentina, Brazil, Chile, Paraguay, Uruguay</td>
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<tr>
<td>Caribbean Region (14)</td>
<td>Antigua and Barbuda, Bahamas, Barbados, Dominica, Granada, Guyana, Haiti,</td>
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<td>Jamaica, Dominican Republic, Santa Lucia, St. Kitts and Nevis, St. Vicente</td>
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<td>and the Grenadines, Suriname, Trinidad and Tobago</td>
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IICA: Strategic Axis

- Agriculture competitiveness, production and markets.
- Agriculture and rural development.
- Agriculture, natural resources and climate change.
- Agriculture and food security.
IICA: Strategic functions

- Public policies and strategies for agricultural development.
- Strengthening of public and private institutions for agricultural development.
- Knowledge management for agricultural development.
- Capacity building.
- Project development and implementation.
Objective

- Share some thoughts on the need that we have to develop a new type of animal scientist capable of responding to the challenges of the XXI Century.
Challenges of the XXI Century

- Poverty and equality.
- Food security.
- Energy security.
- Environmental sustainability.
- Economic progress.
- Peace.
- Diseases.
“While the prices of food commodities have decreased since their peak of 2008, they remain high in historical terms and volatile. The combined effect of longstanding underinvestment in agriculture and food security, price trends and the economic crisis have led to increased hunger and poverty in developing countries, plunging more than a further 100 million people into extreme poverty and jeopardizing the progress achieved so far in meeting the Millennium Development Goals. The number of people suffering from hunger and poverty now exceeds 1 billion.”

Do we still need animal scientist?

- Livestock production represents 40% of World Agricultural GDP.
- It involves approximately 1.3 billion jobs worldwide.
- More than 1 billion of the poorest people “benefit” from livestock.
- 30% of total world protein is provided by animal products.
- Livestock production accounts for 70% of all agricultural land, 30% of total world land and 8–10% of water usage.
- Most of animal production is in small holding units in the world.

Steinfeld, et al. 2006. Livestock’s long shadow. FAO
Do we still need animal scientist?

- Producing Food
- Generates income
- Fuel and Gas

Randolph, et al., 2007. JAS, 85: 2788
Do we still need animal scientists?

Employment

Social status

Other

Randolph, et al., 2007. JAS, 85: 2788
Do we still need animal scientists?

Animal products are harmful to our health.

Animal Production destroys the environment.

Animal production is inhumane.

Great disillusions and lack of trust
Do we still need animal scientist?

The small producer dilemma:
- Major economic changes have caused profound transformation in the marketing environment of small farmers.
- Millions of farmers and producers face exclusion of lucrative markets exacerbating the cycle of poverty.
- Farmers need to learn new skills, adopt new technologies and organize themselves under new paradigms.
The new animal scientist: Able to respond to multiple demands

For Production and Industry.
- Systemic visions
- Technical knowledge
- Practical abilities

For social, economical and political leadership.
- Social capacities and abilities.
- "Social " knowledge

For advancement of knowledge
- Strong scientific principles.
The new animal scientist

- **Know what!**
  - Concepts
  - Principles
  - Science.

- **Know how!**
  - Competencies
  - Abilities

- **Know who!**
  - Networks
  - Partners
What type of animal scientist do we need?: A new leadership
What do we need to form this new animal scientist?

- Strengthen our institutions
  - Political and strategic support.
  - Align them to superior development goals.
  - Review of curricula and programs.
  - Outreach programs.
  - Involve other areas of knowledge.
  - New tools and educational practices.
- Breaking our own comfort zones.
What determine what we teach?

- Expected industry contributions
- Challenges
- Country Vision
What will determine the success of the new animal scientist?

- What is taught.
- What is learned.
- What we do with what we learn.
Education for the XXI century is highly complex.

Requires strong scientific and technological knowledge.

Requires systemic visions.

Requires a profound social and environmental conscience.
We are part of a global community.
We have the opportunity to create a new world
Challenges for the XXI Century

PEACE AND EQUALITY

FOOD  ENERGY  SUSTAIN

ECONOMIC PROGRESS

EDUCATION AND HEALTH